



Research Paper

Pace and pattern of market arrivals and prices of paddy in Sindhanur and Sirguppa markets of Karnataka

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ABSTRACT : The present study was undertaken to analyse the pace and pattern of market arrivals and prices of paddy in Sindhanur and Sirguppa markets. The seasonal variability of price was less when compared to the variability in arrivals of paddy in both the markets. The cyclical variation in arrivals and prices over the years was found to be an uneven cycle which was being observed in both markets. Both the markets have shown an increasing trend for both for arrivals and price. Strong relationship between arrivals and price was ascertained as the co-efficient of correlation and regression between arrivals and prices was positive and significant in both the markets.

KEY WORDS : Seasonal variation, Cyclical variation, Arrivals, Price, Market

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INTRODUCTION :

Agricultural marketing plays, an important role in the economic development as it stimulates production, avoids unnecessary fluctuation in output and prices and reduces costs of production. However, for attaining these benefits, marketing system and marketing technology have to keep pace with the production technology and socio-economic development of the country. The nature and supply of agricultural products generally results in instability of prices and income within agricultural sector as well as in other sectors of the economy. The variations in market arrivals and prices are of two kinds. The first is related to the fluctuations over time, (generally termed as temporal variations) and is caused by changes in factors exogenous to the producers. The second

comprises fluctuations over space (known as 'spatial' price variation) and is the outcome of differences in location of production, transportation bottlenecks etc. These factors in turn, lead to changes in the cropping pattern and the income of the farmers. The temporal variations are the result of a complex mixture of changes associated with seasonal, trend, cyclical and irregular components. The seasonal variation is a regularly recurring pattern that is completed once in twelve months. Such seasonality is seen in the arrivals as well as in the prices of farm products. Following the seasonality in production and arrivals, the prices also exhibit seasonal variations. Normally the prices of storable produce are lower at harvest time and then rise as the season progresses, reaching their peak just prior to the next harvest. The trends in arrivals and prices are the changes

over years and observed in the long run. The trends in arrivals are associated with development in technology of production, input supply and infrastructure. The study of trends enables us to indicate the general direction of changes in arrivals and prices in different markets.

The importance of cereals in the world of today is cereal grains have been considered as the principal component of human diet for thousands of years and have played a major role in shaping human civilization. Among cereals, paddy undoubtedly constitutes the largest and most important role in food consumption. In India, Paddy occupies nearly 44.14 million hectares which covers 35 per cent share of the cultivated land under food grain with 106.65 million tonnes of the production with an average yield of 3620 kg per ha. Among the states West Bengal ranks first in paddy production (15.37 million tonnes) and productivity (2788 kg/ha) with nearly 5.51 million hectares of area during 2013-14. The major states producing paddy are Uttar Pradesh (14.63 million tonnes), Andhra Pradesh (13.03 million tonnes), Punjab, Odisha and Chhattisgarh. In Karnataka, paddy production accounts for 30.45 per cent of total food grain production and 35.13 per cent of total cereal production. Karnataka ranks twelfth position in area and eleventh position in production and accounts for 3.04 per cent of the area and 3.35 per cent of the production of the paddy in the country. The predominant paddy growing areas are Raichur (13.99%), Bellary (11.53%), Davanagere (11.51%), Shivamogga (9.78%) and Mysore (8.32%). In Karnataka, area under paddy in 2013-14 was 12.78 lakh hectares with production of 33.64 lakh tonnes and productivity of 2769 kg per hectare. In view of the importance of cereals, an attempt has been made in this study to analyse the pace and pattern of market arrivals and prices of paddy in Sindhanur and Sirguppa markets in Karnataka.

MATERIALS AND METHODS :

Karnataka state which is one of the major cereals growing state in the country was purposively selected for the study. Among the cereals, paddy was selected for the present study. The major paddy growing districts of Karnataka are Raichur which has the highest area (1.56 lakh ha) followed by Davanagere (1.34 lakh ha), Shivamogga (1.28 lakh ha), Bellary (1.18 lakh ha) and Mysore (1.11 lakh ha). Among the selected districts selection of markets for the study

was done on the basis of maximum quantity of arrivals for the markets. To select the markets the triennium average (2012-2015) of paddy arrivals in each of the markets in the selected districts were selected and the markets were arranged in the decreasing order of arrivals. Later the top two major markets of paddy where the quantity of arrivals maximum was selected for the present study. Thus, Sindhanur market and Sirguppa market for paddy crop was selected. Monthly data on arrivals and prices (model price) were collected for the period 1998 to 2015 for Sindhanur market and for the period 2002 to 2015 for Sirguppa market (From respective Agricultural Produce Market Committee).

Orthogonal polynomial regression analysis was adopted to assess the trends in arrivals and prices of paddy in selected markets. Multiplicative model of the time series was employed for the analysis of seasonal and cyclical variations in price and arrival movements of paddy in the selected markets. Simple regression analysis was carried out to ascertain the response of price to a given change in arrivals. The correlation co-efficient technique has been adopted to assess the nature and magnitude of association between arrivals and prices of cereals in the selected markets.

RESULTS AND DATA ANALYSIS :

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Trends in arrival and prices of paddy in selected markets :

Trends in arrival and prices of paddy was analysed by orthogonal polynomial regression in selected markets are presented in Table 1. The pattern of trend in arrivals and prices was observed for paddy in Sindhanur and Sirguppa market. In Sindhanur market, increasing arrivals trend was observed upto 2001-02 and later it was slightly decreased upto 2009-10 and, thereafter, increasing trend was observed. In case of price trend there was a continuous increasing trend was observed over the period. With respect to Sirguppa market arrival trend was observed increasing in initial periods but during 2012-13 showed decreasing trends till 2014-15. In case of price trend, there was a decreasing trend during initial period later, it shows increasing trend till 2015 (Fig. 1). Though

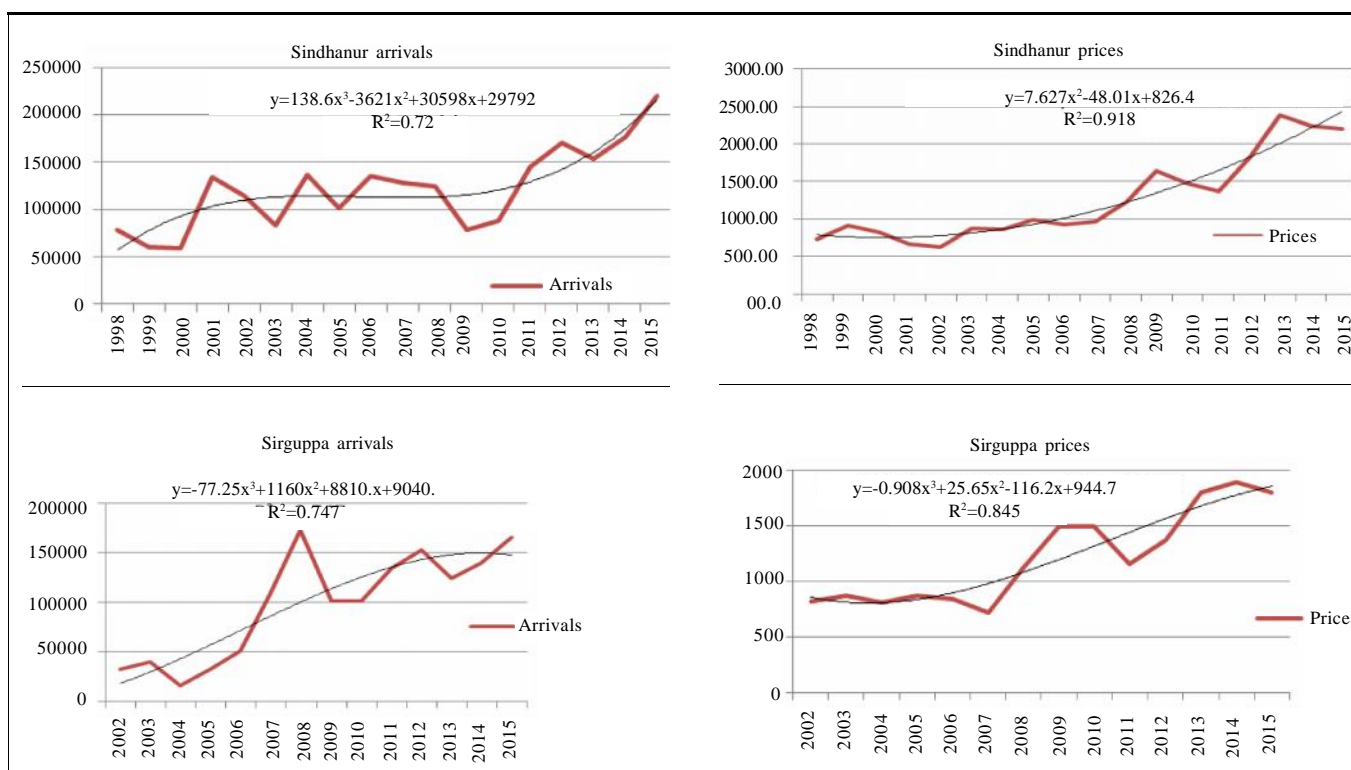


Fig. 1 : Trend in arrivals and prices of paddy in Sindhanur and Sirguppa market

Table 1 : Estimated trend functions for paddy arrivals and prices in selected markets

Markets	Arrivals						R ²	F
	intercept	X	X ²	X ³	X ⁴	X ⁵		
Sindhanur	29792	30598**	-3621	138	-	-	0.72	20.12
Sirguppa	9040	8810**	1160	-77.25	-	-	0.74	30.28
Prices								
Sindhanur	826.4	-48.01**	7.627	-	-	-	0.91	68.77
Sirguppa	944.7	-116.2**	25.65	0.908	-	-	0.84	47.35

* and ** indicate significance of values at P=0.05 and 0.01, respectively

Table 2 : Seasonal indices of monthly arrivals and prices of paddy in selected markets

Months	Sindhanur		Sirguppa	
	Arrivals	Prices	Arrivals	Prices
January	133.12	98.16	110.55	101.56
February	107.32	101.33	74.57	101.15
March	105.95	101.36	74.56	93.9
April	107.56	100.79	115.92	89.93
May	100.8	99.8	105.14	101.34
June	92.98	99.22	101.98	100.44
July	87.84	102.75	93.23	101.22
August	64.9	99.13	80.86	102.63
September	63.96	102.65	90.25	99.28
October	70.08	98.82	67.68	101.94
November	90.53	98.26	109.41	104.48
December	174.96	95.64	175.85	102.13

the arrivals increased the prices did not show the corresponding decline, this might be due to the fact that the commodity may be in continuous demand in the locality. It could be also due to the reason that, paddy is the main commodity of the both markets and there is higher demand as well as higher arrivals (Pandit *et al.*, 2012).

Seasonal indices of arrivals and prices of paddy in selected markets :

The seasonal indices of arrivals and prices of paddy in Sindhanur and Sirguppa markets are presented in the

Table 2 And Fig 2. As the crop is mainly grown during *Kharif* season higher indices were noticed for arrivals soon after the harvest *i.e.* during December to April in Sindhanur and Sirguppa markets. The computed seasonal indices were high during the months of December and January and later marginal decrease was found till the month of May in Sindhanur market. In Sirguppa market, arrival indices were shows in a mixed pattern. The values observed were more in the month of December and January and decreased during February and March and later shows the more arrivals. In both the markets, the

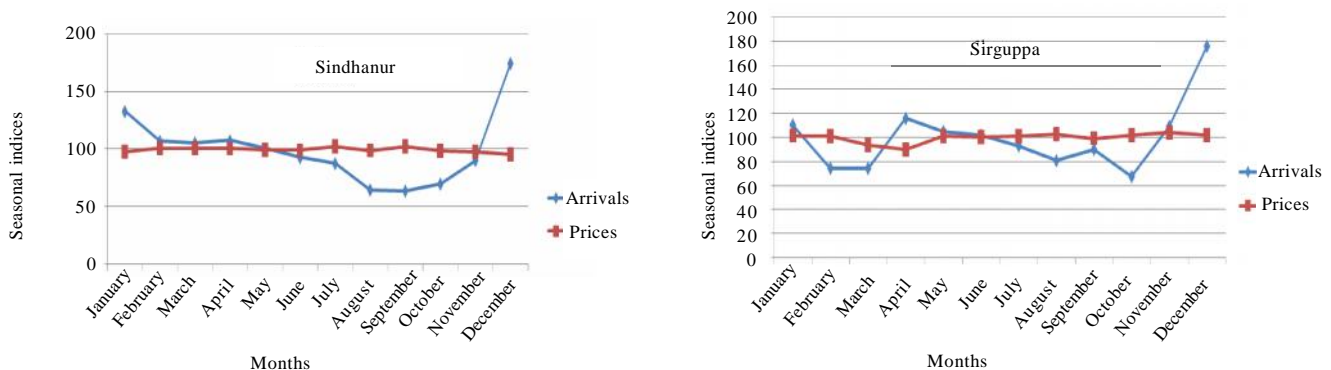


Fig. 2 : Seasonal indices of arrivals and prices of paddy in Sindhanur and Sirguppa market

Table 3 : Cyclical variation in arrivals and prices of paddy in selected markets

Year	Sindhanur		Sirguppa	
	Arrivals	Prices	Arrivals	Prices
1998	-	-	-	-
1999	85.14	158.39	-	-
2000	93.69	129.49	-	-
2001	124.51	96.85	-	-
2002	119.64	84.19	-	-
2003	104.04	87.04	91.16	116.55
2004	107.46	87.94	56.9	103.83
2005	105.79	84.53	53.66	94.34
2006	105.48	78.65	82.72	82.99
2007	103.8	77.52	130.76	78.25
2008	87.78	89.18	150.71	94.03
2009	68.05	99.25	117.67	110.55
2010	69.58	93.23	95.6	104.71
2011	91.66	88.6	103.79	90.09
2012	103.19	102.56	103.92	92.65
2013	101.59	116.79	92.34	105.7
2014	108.5	114.45	89.85	108.1
2015	90.09	81.1	71.13	77.56

arrivals were found to be low in the months from June to October. The pace and pattern of arrivals indicated that paddy was generally grown extensively in Sindhanur and Sirguppa locality. Here both the markets showed increased arrivals for 5 months. Thus, the maturity of the produce was sold soon after the harvest for want of cash or lack of storage facilities (Mundinamani *et al.*, 1999 and Chaudhari and pawar, 2010).

The price movement also demonstrates significant seasonal fluctuations in the selected markets. The seasonal indices for price of paddy is concerned, mixed pattern was noticed in both the markets. Higher price indices noticed in the lean period that was during May to August. The highest price indices were noticed in the month of July (102.75) for Sindhanur and November (104.18) for Sirguppa markets. In generally the higher price indices were noticed in the month of lean arrival months and *vice versa*. But the price indices values observed more or less the same during both peak and lean arrival months in some the markets (Mitrannavar and Gummagolmath, 1998).

Cyclical variations in market arrivals and prices of paddy in selected markets :

Cyclical variation in arrivals and prices was analysed in order to know the variation in arrivals and prices over the years. For this the multiplicative model was employed and cyclical variations were obtained by dividing the original data by the seasonal factor and trend factors. The cyclical indices of monthly arrivals and prices of paddy in the selected markets are presented in the Table 3 and Fig 3. It could be explained that in selected markets for paddy uneven cycles were being observed for both arrivals and prices. The number of cycles observed in

Sindhanur, Sirguppa for market arrivals was 2 and these cycles occurred for every 7 years. The number of cycles observed for prices in Sindhanur and Sirguppa was 2 and these cycles occurred on an average for every 8 years. The variations in the arrivals of paddy across the years could be attributable to weather and climatic conditions, pest and disease situations, market impact factors and such other parameters which vary at regular intervals (Mitrannavar and Gummagolmath, 1998).

Relationship between annual market arrivals and average prices of paddy in selected markets :

To ascertain the relationship between annual market arrivals and average prices of paddy in the selected markets, linear regression was computed by taking into account the annual total arrivals and average prices of paddy. The regression equations showed that there was a positive relationship between arrivals and prices of paddy crop in both markets. The relationship between arrivals and prices of paddy was positive in both Sindhanur and Sirguppa markets. In Sindhanur and Sirguppa market, an increase in 1000 qtl of market arrivals led to an increase in price by Rs. 0.71 and Rs. 0.43 per qtl for paddy.

$$Y_t = 222.500 + 0.711t \text{ (Sindhanur), } R^2 = 0.40$$

$$Y_t = 705.00 + 0.433t \text{ (Sirguppa), } R^2 = 0.45$$

This implied that as the market arrivals of paddy increased in the markets, the prices also increased. However, statistically significant positive relationship was found in both the selected markets. In Sindhanur and Sirguppa markets, multiple co-efficient of determination R^2 was found to be 40 per cent and 45 per cent which implied that 40 per cent and 45 per cent of change in price was mainly due to the contribution of independent

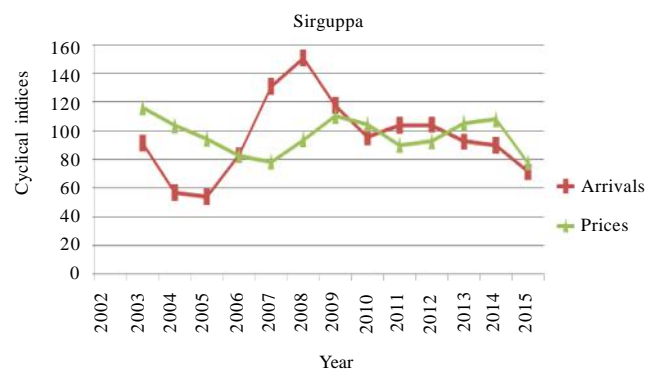
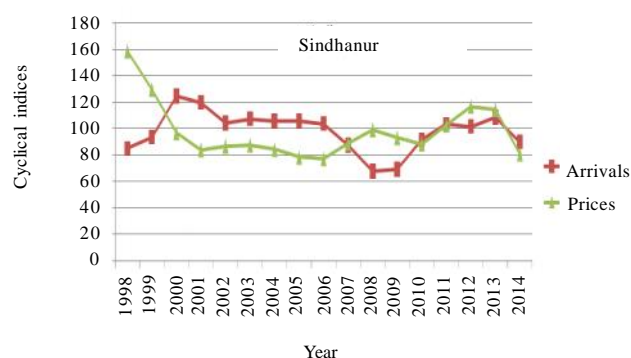


Fig. 3 : Cyclical indices of arrivals and prices of paddy in Sindhanur and Sirguppa market

variable arrivals and it was found to be statistically significant at 1 per cent.

Relationship between market arrivals and prices of paddy in selected market :

The correlation co-efficients were computed to ascertain the pattern of association between market arrivals and prices of paddy in selected markets. The results of the analysis indicates that a significant (at 1 %) and positive relationship between arrivals and prices ($r = 0.63$ and $r = 0.67$) were noticed for both Sindhanur and Sirguppa market, respectively. Thus it indicates that along with increase in paddy arrivals prices also increased. The reason might be due to favourable climatic condition and demand from the processing unit in and around the both markets. The market has been considered as a demand driven market due to the presence of large number of processing units and traders in Sindhanur and Sirguppa markets Arun *et al.* (2012); Biradar (1996) and Kaur *et al.* (2013).

Conclusion :

The pattern of trend in arrivals and prices of paddy showed an increasing trend in both arrivals and prices of paddy over the years. Generally the market arrivals were high in the months of December to April. In general the arrivals indicate that the farmers sold the bulk of their produce immediately after the harvest, probably for want of cash needs and or lack of storage facilities. But the price indices values observed more or less the same during both peak and lean arrival months. The variation in arrivals and prices over the years was an uneven cycle which was being observed for paddy. There was a positive relationship between

arrivals and prices of paddy crop in both markets.

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LITERATURE CITED :

- Arun, P., Samal, P. and Jyothi, R.M. (2012). An analysis of price behaviour of rice in Eastern Indian Markets, *Indian J. Agric. Mktg.*, **26** (2) : 102-114.
- Biradar, R. D. (1996). Marketing costs, margins and price spread of selected agricultural commodities in Kolhapur district, Maharashtra. *Indian J. Agric. Mktg.*, **11**(4): 60-71.
- Chaudhari, D. J. and Pawar, N. D. (2010). Growth and instability and price analysis of chickpea (*Cicer arietinum* L.) in Maharashtra state. *Green Farm.*, **1**(3): 276-278.
- Kaur, P. J., Singh, I. P. and Sharma, S. (2013). Production and marketing of basmati paddy in Hanumangarh district of Rajasthan. *Indian J. Agric. Mktg.*, **27**(1): 59-66.
- Mehta, R. and Pankaj, K.S. (2000). Analysis of seasonality in prices of agricultural commodities. *Agric. Situ. India*, **57** (9): 311-323.
- Mitrannavar, D.M. and Gummagolmath, K.C. (1998). Seasonal indices of arrivals and prices and market concentration of potato in regulated markets of northern Karnataka. *Bihar J. Agric. Mktg.*, **6** (3) : 332-339.
- Mundinamani, S.M., Ranganath, S.K.N. and Basavaraja, H. (1999). Trends and seasonality in market arrivals and prices of groundnut in Karnataka. *Indian. J. Agric. Mktg.*, **13** (1): 53-59.
- Pandit, A., Samal, P. and Jyothi, R. M. (2012). An analysis of price behaviour of rice in Eastern Indian markets. *Indian J. Agric. Mktg.*, **26** (2) : 102-114.

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